

CLAIMS:

5 1. A method of regenerating a biosensor of the type having a signal generating portion responsive to some property of or to the presence of some component in a biological fluid, and having a flow passage through which fluid is being passed at selectable flow rates, the method comprising:

10 a) passing a background flow of fluid without response generating components through the flow passage;

15 b) at a selected point in time introducing a sample aliquot into said background flow;

characterized by

20 c) increasing the flow rate of the background fluid at a point in time when at least a fraction of said sample aliquot has entered said flow passage.

25 2. The method of claim 1, comprising detecting the presence of the sample by the sensor and increasing the flow rate at a point in time 0-30 seconds after the presence of sample is detected, preferably 0-20 seconds, more preferably 0-10 seconds, and most preferably immediately after such detection.

30 3. The method of claim 1 or 2, wherein said flow rate is increased by 5-100%, preferably 10-50%, most preferably 15-30%.

35 4. The method of claim 1 or 2, comprising maintaining the increased flow rate until the signal from the sensor has reached a preselected value.

5. The method of claim 4, wherein said preselected value is a signal peak maximum.

sub A3 6. The method of any preceding claim, wherein the increased flow rate is maintained for 10-60 s, preferably 20-40 s.

7. The method of any preceding claim, wherein said background flow is 0.1 - 10 ml/min., preferably 1 ml/min.

8. The method of any preceding claim, wherein said increase in flow rate is initiated when the entire sample has entered said flow passage.

9. The method of any preceding claim, wherein sample is continuously drawn from a sample source, and when not being analyzed it is disposed as waste.

10. The method of any preceding claim, wherein the sample is blood, optionally premixed with anticoagulant.

11. The method of claim 10 wherein said anticoagulant is premixed with blood in a ratio of 1:1.

sub A4 12. A system for continuous monitoring of analytes in a biological fluid, the system having increased life by virtue of inherent regeneration of sensors employed, the system comprising

30 a) a biosensor (26, 30, 32) of the type having a flow passage through which fluid is being passed at selectable flow rates, and a signal generating portion located in said flow passage and responsive to some component or property of a
35 biological fluid,

b) a sampling device (4) for providing a sample of said biological fluid;

5 c) means (10, 15, 18, 24) for passing a flow of a background fluid through said flow passage at selectable flow rates;

10 d) means (20, 50, 55) for injecting said sample into said flow of background fluid at selectable points in time to provide a combined flow;

15 e) means (50, 55) for increasing the flow rate of said combined flow at a selectable point in time during passage of the sample through said flow passage in order to achieve a washing action on the signal generating portion; and

20 f) means (30, 32) for providing a signal from said signal generating portion.

25 13. The system of claim 12, wherein said sampling device comprises a catheter (4) insertable in a blood vessel of a human or an animal, and tubing (8) connecting the catheter to the system.

30 14. The system of claim 12 or 13, wherein said means for passing a flow of a background fluid through said flow passage at selectable flow rates comprises a pump (10) and appropriate tubing (18, 24).

35 15. The system of claim 12, 13 or 14, wherein said means for injecting said sample into said flow of background fluid, comprises a valve (20) switchable between injection and waste disposal modes.

16. The system of any of claims 12-15, wherein said means for increasing the flow rate comprises a control unit (50) programmed to respond to signals from said sensor.

17. The system of any of claims 12-16, wherein said means for providing a signal from said signal generating portion comprises at least one thermistor (30, 32).

18. The system of any of claims 12-17, further comprising a connector (100) for connecting said sampling device (4) to said pump (10), the connector comprising

a male (102) and a female (104) part,

a tube (108) of a hard material such as steel having an inner diameter, and being inserted in the center of one of said male (102) and female (104) parts and protruding from an end surface (118) of said part (104; 102),

a catheter (106) of a soft material inserted in the center of the other of said male (102) and female (104) parts and having an inner diameter substantially smaller than the inner diameter of said tube (108), and having an essentially flat end surface (126), wherein

the protruding end of said tube is ground such as to form a sharp circumferential edge (112), and wherein

the positions of said tube (108) and said catheter (106) in their respective male or female part, are such that when said male and female parts are connected, said sharp edge (112) penetrates into said catheter (106), thereby forming a fluid tight connection.